Katherm QE 2.42

Crossflow fan-assisted convection with electric heating







Assembly and Installation Manual

Explanation of symbols:



Caution! Danger!

The non-observance of this information can result in serious injury to persons or property.



Non-observance of this information can result in serious damage to persons or property from electrical power.

Read this manual carefully prior to assembly and installation work!

All persons involved in the i n s t a l l a t i o n , commissioning and use of this product are obliged to pass this manual on to all persons working simultaneously or subsequently on this equipment, including the end user. Retain this manual until the equipment is u l t i m a t e l y decommissioned!

We reserve the right to make changes to the content or design without prior notification!

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1. Correct and proper use

Kampmann **Katherm** QE are manufactured in accordance with state-ofthe-art and recognised safety regulations. Personal danger or damage to the equipment or other property can nevertheless be caused if the units are not installed, commissioned and used correctly and properly.

Katherm QE should only be used indoors (for example in residential and office buildings, salesrooms etc.). They cannot be used in damp areas, such as swimming pools or outdoors. The product should be protected from moisture during installation. In case of doubt discuss the proposed use with the manufacturer. Any other use or any use, other than the aforementioned, will not be deemed to be correct and proper. Any damage resulting from improper use is the sole responsibility of the user/operator of the equipment. Correct and proper use will also be deemed to include observance of all information regarding safety, operation and maintenance/servicing, contained in this manual.

The installation and electrical wiring of this product requires specialist knowledge in the field of heating, cooling, ventilation and electrical engineering. This knowledge is generally taught as part of a vocational training course in the aforementioned fields and so is not described separately here. Damage resulting from improper installation is the sole responsibility of the operator.



- ① Roll-up grille
- Ploor duct, sendzimir galvanised, painted grey
- ③ Frame profile to match grille colour
- ④ Screed anchoring lugs
- Height adjustment feet with optional fixings and sound insulation
- 6 Guide wall
- ② Electric heating element
- ® Crossflow fan
- Output control
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 Ou
- ⁽¹⁾ Speed control electronics
- Openings for electrical cabling



Katherm QE 272



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2. Safety information

Installation, assembly and maintenance of electrical equipment should only be conducted by a qualified electrician (Association of German Electriciansapproved or similar). Wiring should comply with current Association of German Electricians' (VDE) guidelines and regulations set out by the regional energy supply companies (EVU).

Non-observance of these guidelines and the operating manual can lead to malfunctions with subsequent damage to the equipment and risk of personal injury. Incorrect wiring can result in fatal injury owing to crossed wires!

Prior to all wiring and maintenance work, all parts of the system have to be made voltage-free and prevented from being reconnected accidentally! The installer of this unit should have adequate knowledge about:

- Safety and accident prevention regulations
- Guidelines and recognised technical regulations e.g. VDE regulations, -
- DIN and EN standards
- Accident prevention directives VBG, VBG4, VBG9a
- DIN VDE 0100, DIN VDE 0105
- EN 60730 (Part 1)
- Regional energy supply company technical regulations (TABs)



Openings to fit a potential compensation cable have already been made on the floor duct.



Attention! Do not cover grille whilst unit in operation!

3. Models / Scope of delivery

Katherm QE are supplied as standard with:

- Sceed anchoring lugs ①
- Height adjustment feel on the room side, ② with rubber bases or sound attenuation ③ (with screed); without screws and rawlplugs (by others).
- Adjustment screws for height adjustment on the window side, ④ with feet for sound attenuation ⑤





4. Alignment

- Remove the outer packaging film and cardboard from the floor duct
- Position the **Ka**therm QE and adjust the height using the height adjustment feet and adjustment screws.
- Fix the height adjustment feet on the room side ② with rubber bases for sound attenuation ③, with screws and rawlplugs (by others).
- Ensure that the installation manual is visible on the floor duct for the subsequent trades.
- Cover the grille and the Katherm QE to protect it from dirt or cement.





Roll-up grilles supplied separately, when using an installation cover to protect the inside of the duct from dirt, will be supplied rolled-up. The grilles may therefore appear to be over-long owing to the steel springs stretching. Unrolling the grilles and leaving them to lie flat for several hours will allow them to regain their former length. Laying the grille into the unit, as shown above, lifting the grille up and down, will help it to fit into the frame.

5. Screeding

Prior to commencing screeding, check whether

- the electrical connection has been made correctly,
- the **Ka**therm QE is aligned correctly in terms of height and distance to the window,
- the grille has been covered (Caution! Cement can destroy the surface of the grille!),
- the screed anchoring lugs have been bent outwards (projecting into the screed),
- sound insulation (not with raised floors) has been fitted under the floor duct,
- there are no sound bridges to the concrete slab, especially around the height adjustment feet,
- all openings in the **Katherm** QE have been sealed with a suitable material against the ingress of screed.
- The openings and punched holes in the duct required furtheer sealing when using self-levelling floor screeds or other viscous floor coverings.

Caution!

• The Katherm QE should not be compressed by screed or by the floor (e.g. parquet). Possibly consider fitting expansion joints..



6. Fitting grilles

High surface temperatures can occur on the electric heating element. For this reason additional grille fixings have been factory-fitted on both sides of the duct to prevent the element being touched. The grille can only be removed using a tool. The grille fixing has to be loosened on one side of the duct to allow access for electrical work. Once the electrical work has been completed, the grille fixing should be refitted.



Installation cover:

Caution! Katherm QE floor duct heaters or the electric heating element itself may not be operated with the installation cover fitted. The grille should be fitted and screwed in place with the grille fixings and self-tapping screws as soon as the installation cover has been removed.



Attention! Do not cover grille whilst unit in operation!











Components of raised floor height adjustment feet - shown for 1250 mm long Katherm QE





7. Fitting raised floor mounting feet

Components supplied per set of raised floor mounting feet

- 1 no. steel bar ①
- 2 no. screws 2
- 2 no. M8 adjustment screws ③ with fitted sound insulation ④

The number of raised floor height adjustmet feet supplied will depend on the length of the **Katherm** QE supplied.

To prevent scratches or damage to the **Katherm** QE and grille, cardboard or similar should be laid underneath the unit.

Remove the punched holes for the threaded screws (Fig. A)

• Remove the Katherm QE grille.

Caution!

When tilting the floor duct, ensure that the electric heating element and edge of the **Katherm** QE duct do not become damaged. Secure the electric heating element against falling out and place cardboard or similar underneath the unit.

- Tilt the Katherm QE carefully onto its side.
- Remove the punched holes provided by pushing them through with a screwdriver.

Fitting the steel bar (Fig. B)

- Fix the steel bar in place with the two metal screws on the underside of the floor duct.
- Screw the two M8 adjustment screws into the flat steel bar so that they can still be accessed for tightening (with the slot facing upwards).
- Fit sound insulation onto the base of the threaded screws.

Height adjustment

- Return the Katherm QE to its installation position.
- Adjust the threaded screws with a screwdiver to adjust the height of the raised floor adjustment feet.



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8. Dimensions • Heat outputs



Heat outputs Katherm QE 182																
Fan speed		Max. fan speed			Medium fan speed							Min. fan speed				
Fan stage			5		4		3		2			1				
Duct length NP = standard range	mm	1250	1750	2250	1250	1750	2250	1250	1750	2250	1250	1750	2250	1250	1750	2250
Air volume	m³/h	240	375	480	180	280	360	140	220	280	110	175	220	90	140	180
Sound pressure level ¹⁾	dB(A)	40	41	42	30	31	32	25	26	27	22	23	24	21	22	23
Sound power level ²⁾	dB(A)	54	55	56	44	45	46	39	40	41	36	37	38	35	36	37
Heat output	W	1100	1650	2200	990	1485	1980	957	1435	1914	924	1386	1848	847	1270	1694

 $^{1)}$ calculated on the basis of the free-field method hemisphere model at a distance of 2 m; refer to the Katherm QE technical catalogue for the calculation of the half-hemisphere model . $^{2)}$ measured according to DIN EN 23741 in an echo chamber with a volume of 200 m³



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Heat outputs Katherm QE 272																
Fan speed		Max. fan speed			Medium fan speed							Min. fan speed				
Fan stage		5		4		3		2			1					
Duct length NP = standard range	mm	1250	1750	2250	1250	1750	2250	1250	1750	2250	1250	1750	2250	1250	1750	2250
Air volume	m³/h	240	375	480	180	280	360	140	220	280	110	175	220	90	140	180
Sound pressure level ¹⁾	dB(A)	40	41	42	30	31	32	25	26	27	22	23	24	21	22	23
Sound power level ²⁾	dB(A)	54	55	56	44	45	46	39	40	41	36	37	38	35	36	37
Heat output	W	1500	2250	3000	1350	2025	2700	1305	1957	2610	1260	1890	2520	1155	1732	2310

 $^{1)}$ calculated on the basis of the free-field method hemisphere model at a distance of 2 m; refer to the Katherm QE technical catalogue for the calculation of the half-hemisphere model . $^{2)}$ measured according to DIN EN 23741 in an echo chamber with a volume of 200 m³



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9. Wiring

9.1 Safety information

The wiring of this product requires specialist knowledge in the field of heating, cooling, ventilation and electrical engineering. This knowledge is generally taught as part of a vocational training course in the aforementioned fields and so is not described separately here.

The installer of this unit should have adequate knowledge about

- Safety and accident prevention regulations
- Guidelines and recognised technical regulations e.g. VDE regulations, -
- DIN and EN standards
- Accident prevention directives VBG, VBG4, VBG9a
- EN 60730 (Part 1)
- Regional energy supply company technical regulations (TABs)
- DIN VDE 0100, DIN VDE 0105

It is mandatory that the following safety-related information is adhered to prior to working on the controller and the units:

- Disconnect the unit from the mains power supply and ensure that it cannot be reconnected accidentally.
- Wire the unit in accordance with the wiring diagrams supplied.
- Wiring should comply with current Association of German Electricians' (VDE) guidelines and regulations set out by the regional energy supply companies (TABs).
- The unit should only be wired to fixed cables.

Modifications to the units

Do not undertake any modifications, conversions or additions to the units without consulting the manufacturer, as this would impair the safety and operation of the equipment.

Incorrect wiring or modifications to the unit can result in damage to the unit! The manufacturer cannot be held liable for damage caused by incorrect wiring and/or incorrect installation and operation!

Disregard of the regulations and information contained in the operating manual can cause malfunction of the unit with possible damage to the unit and risk of possible injury. Incorrect wiring and crossed wires can cause fatal injury!



9.2 Cabling

- The following information on cable types and cabling must be adhered to in compliance with VDE 0100. Otherwise the correct functioning of the unit cannot be guaranteed and the guarantee will be invalidated.
- Training and operational checks of the unit can be provided by Kampmann technicians or customer service personnel. This should be applied for in writing along with notification of readiness by the contracted installation firm.





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- Should the training and functional checks not be able to be fully performed in spite of receipt of notification of readiness (owing to cabling not being laid, power supply to site etc.), then any additional costs incurred will be charged.
- The cross-sections of unshielded cables are not given as the length of cable affects the calculation of the cable cross-section.

9.4 Control

When the fans are switched off, the heating element is also switched off. As soon as the fans have been switched on at a specific fan speed, the 0-100% heat output controller becomes operational. Only the control signal is switched or regulated via room thermostats or BMS systems. Every **Katherm** QE has a separate mains supply.

When the fan speed is changed, the requiste electrical heat output is automatically regulated accordingly. A temperature sensor O in the air outlet, together with the electric output controller O guarantees a constant air outlet temperature. The energy-optimised provision of heat can be guaranteed by the 0-100% adaptation of the electrical heat output to the room heat requirement.



9.5 Safety function

The electric heating element is fitted with a 2-stage safety switch. If the temperature of the grille surface increases to 70 °C, owing to incorrect use, such as the floor duct heater being covered, the heating element will be switched off by a safety thermostat. As soon as the element cools down or the cause of overheating has been remedied, the temperature switch will automatically switch itself back on.

If the temperature in the floor duct heater continues to rise for some unknown reason, the temperature safety switch will be disabled. The floor duct heater can then only be restored to operation **by qualified technical personnel**. If one of the two safety stages has been triggered, this will be alerted by a potential-free fault alert contact.



 ① Temperature sensor
 ② Electric output controller (HRR module)

③ Speed control electronics (ITC module)



9.6 Connections

- Remove the terminal cover on the two modules.
- Connect up the mains cable to the electric element control (HRR module 2) and all the other cables to the fan speed electronics (ITC module 1) in accordance with the wiring diagrams enclosed.
- Replace the terminal cover once commissioning has been completed.

9.7 Electrical ratings

Thermostats						
Туре	Max. switch. current					
Room thermostat with speed controller, type 146924	4 A					
Room thermost., type 146927	4 A					
Clock thermostat, surfmoun- ted, type 146910	4 A					
Clock thermostat, flush- mounted. type 146932	2 A					

Article number	Longth	F	an	Max. heat output	
Katherm QE 182	Length	Output	Power		
2420211xxx20	1250 mm	20 W	0.11 A	1100 W	
2420211xxx30	1750 mm	32 W	0.17 A	1650 W	
2420211xxx40 250 mm		40 W	0.22 A	2200 W	
Katherm QE 272					
2420411xxx20	1250 mm	20 W	0.11 A	1500 W	
2420411xxx30	1750 mm	32 W	0.17 A	2250 W	
2420411xxx40	2250 mm	40 W	0.22 A	3000 W	



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 Potiometer maxmum fan speed limitation

Fig.: ITC module

Stage	Switching- on point	Switching off point							
DIP 1 = Off									
1	1.5 V	1.0 V							
2	3.5 V	3.0 V							
3	5.5 V	5.0 V							
4	7.5 V	7.0 V							
5	9.0 V	9,5 V							
DIP 1 = 0	DIP 1 = On								
1	0.0 V	Only by voltage- free switching of the ITC module							
2	1.92 V	1.42 V							
3	4.42 V	3.92 V							
4	6.88 V	638 V							
5	8.86 V	8.36 V							

9.8 Configuration of ITC module

Configuring the analogue input for the fan setting (A): The fan can be set in two ways. It is adapted via the DIP switch 2 (see photos) to the terminal strip.



DIP switch 2 "ON" (factory setting): Activation via speed controller as potentiometer 0 - 100 k Ω ; e.g. Speed controller type 146936 Room thermostat with speed controller type 146924



DIP switch 2 "OFF": Operation as "slave unit", activated via 0 - 10 V signal from upstream speed controller ("master unit") Activation via 0 - 10 V- signal from external DDC system;

Configuration of voltage stepping:

A 0-10 VDC signal is converted into five stages via a transformer. Integral microfuse for mains supply: T2AL / 250 V DIP 1: OFF: Min. speed = Fan "Off" DIP 1: ON: Min. speed = Fan "Stage 1"

Maximum fan speed limitation:

The fan speed can be limited by the potentiometer B (see photo) to any nominal fan speed ranging from 25% to 100% (factory setting: 100%).

Minimum fan speed limitations:

The minimum fan speed is set in the electrics control software and cannot be changed externally.

Technical data						
Operating voltage	230 V AC					
Mains frequency	50 Hz					
Effective power transfer	140 W					
Maximum motor current	1.2 A					
Control signal input	0-10 V DC, 0-100 kΩ; 0.1 mA					
Input impedance	>100 kΩ					



155Cm



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